UNDRO NEWS

OFFICE OF THE UNITED NATIONS
DISASTER RELIEF

BUREAU DU COORDONNATEUR
DES NATIONS UNIES POUR LES

Editorial

Each major disaster triggers a flurry of international activity, centered on mobilization of humanitarian aid to the victims. In many cases, these international aid efforts have tended to come up against various bottlenecks, bureaucratic red tape, politics, confusion and ignorance on the part of aid donors and recipients alike on how to put into effect a coherent and concerted relief effort.

More often than not, the national government of the disaster-stricken country is insufficiently equipped, in terms of organizational structures, to carry out on its own the massive rescue and relief operations needed to provide immediate aid to the victims. This was not true, however, in the case of the powerful earthquake which devastated the North-West of the Islamic Republic of Iran on 21 June. Used to coping with disasters, including numerous past earthquakes, the Iranian Red Crescent Society has 5,000 full-time staff and can mobilize 10,000 volunteers. Furthermore, sophisticated equipment and techniques are not necessarily required in all earthquake disasters. In this instance, the nature of the buildings - mostly single and two-storey houses - was such that the rubble was easily accessible even with simple means, and there was little need for specialized search and rescue teams or equipment. Four days after the event, UNDRO's delegates to Iran reported that massive and effective relief operations, mounted by the Iranian authorities were underway and by 27 June, the rescue and first aid phase was considered almost over. Indeed, on his return from Iran, the United Nations Disaster Relief Co-ordinator and Special Representative of the Secretary-General declared that the capacity of the Iranian people to deal with this human tragedy inspired admiration among all those who witnessed their efforts to help the needy.

One of the lessons drawn from the Armenian earthquake of December 1988 is that an uncontrolled influx of foreign aid workers and search and rescue teams as well as donations of inappropriate relief supplies, however well-meaning, can slow down and even obstruct emergency relief efforts.

That is not to say that the work accomplished by hundreds of medical and search and rescue workers from other countries who rushed to the disaster area was not required or appreciated. The Iranian Interior Minister later declared that the timely presence of foreign forces, with advanced and complete equipment, had been effective in search, rescue and treatment of the victims. But Iran's initial hesitation in accepting large-scale assistance with personnel from abroad may have helped to avoid some of the bottlenecks and organizational difficulties encountered with the Armenian earthquake.

Toute catastrophe importante déclenche, sur le plan international, une subite mobilisation de l'aide humanitaire. Dans bien des cas cette aide se heurte à divers obstacles tels que la bureaucratie, la politique, voire le manque d'information ou d'expérience des donateurs et des bénéficiaires quant à la mise en œuvre de secours concertés et cohérents.

Trop souvent, le gouvernement d'un pays frappé par une catastrophe ne possède pas toutes les structures lui permettant d'assumer, à lui seul, l'ensemble des opérations de sauvetage et de secours d'urgence qui s'imposent. Cela n'a pas été le cas en Iran lors du très violent séisme qui a dévasté le Nord-Ouest de la République Islamique le 21 juin. Habitué à faire face aux catastrophes, y compris à de nombreux séismes antérieurs, le Croissant Rouge iranien dispose en permanence d'un corps de 5.000 personnes et peut mobiliser 10.000 volontaires. Par ailleurs, toute catastrophe sismique ne requiert pas forcément des techniques et un équipement sophistiqués. Dans le cas précis, le type même de constructions - en général des maisons de plain-pied ou à un étage - a rendu plus faciles les recherches sous les décombres, ne nécessitant pas du personnel ou d'équipement spécialisé. Quatre jours après le séisme, les membres de la mission UNDRO en Iran indiquaient que les autorités iraniennes avaient déployé des opérations de grande envergure et, dès le 27 juin, ils annonçèrent que la phase des premiers secours était considérée comme pratiquement terminée. A son retour d'Iran, le Coordonnateur des Nations Unies pour les Secours en cas de catastrophe et Représentant Spécial du Secrétaire Général, déclarait que l'extraordinaire mobilisation du peuple iranien face à cette tragédie avait soulevé l'admiration de tous ceux qui en avaient été témoins.

On a pu constater, suite au séisme qui a frappé l'Arménie en décembre 1988, que l'afflux incontrôlé, d'équipes de recherches et de sauvetage en provenance de l'étranger, ainsi que les dons de secours inappropriés, si bien intentionnés soient-ils, peuvent ralentir, voire entraver, les secours d'urgence.

Cela ne signifie nullement que le travail accompli sur les lieux de la catastrophe par les centaines de personnes des équipes médicales et de secours venues d'autres pays n'ait pas été nécessaire ou reconnu. Le Ministre de l'Intérieur iranien déclara à ce propos que la présence opportune de corps de secours étrangers pourvus de matériel approprié avait été précieuse tant sur le plan des secours que sur celui des soins. L'hésitation première de l'Iran à accepter des équipes de secours venues de l'étranger lui a probablement permis d'éviter certains obstacles et certaines difficultés rencontrés lors du tremblement de terre en Arménie.

Scenes from the Iranian Earthquake

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Information Officer and Responsible Editor: O. Mengin
UNDRO Editorial Board:
Habib Boulares, S.W.A. Gunn, Vit Karnik
Franklin McDonald, Yuki Sato

Office of the United Nations Disaster Relief Co-ordinator (UNDRO), Palais des Nations, CH-1211 Geneva 10, Switzerland. Tel.: (022) 734-60-11 - Telex 414242 undr ch.

Contents

Pages

Editorial 2
International Assistance Required for Drought-Stricken Peru
Mozambique Donors' Conference 4
Plans for Future Emergency Relief Operations in Liberia
Appeal for Urgent Assistance to Angola 6
After Chernobyl 7
Secouristes Volontaires en Colombie 8
Des chiens aux secours des victimes de catastrophes 9
Working Towards Natural Disaster Reduction - *The World Meteorological Organization Contribution* 11
UNDRO at Work 14
Impact of the Greenhouse Effect on Bangladesh 21
Seminars and Conferences 25
Calendar of IDNDR-Related Events 1990 26
Improving Cyclone Warning Response and Mitigation 27

International Assistance Required for Drought-Stricken Peru

At the request of the Secretary-General of the United Nations and following an appeal from the Peruvian authorities for international assistance to combat the effects of a disastrous drought affecting an estimated 3.8 million people, UNDRO led an inter-agency mission to Peru from 15 to 25 May. The mission included representatives of the Food and Agriculture Organization (FAO), the World Health Organization (WHO/PAHO), UNICEF and the World Food Programme (WFP).

The mission had the task of assessing food needs in rural and urban areas, including metropolitan Lima, of estimating requirements in seeds, fertilizers, pesticides and other relief items in affected areas, of identifying health risks due to lack of water among the urban populations and vulnerable groups (children, lactating mothers and the elderly), of evaluating the needs in medical supplies for people at risk, and of making recommendations for the channelling and distribution of relief supplies, with a view to launching an international appeal for assistance.

The terms of reference for the inter-agency mission were based on the recommendations made by Under-Secretary-General Margaret J. Anstee, Director General of the United Nations Office at Vienna, who undertook a mission to Peru from 24 to 28 April, as the Special Representative of the Secretary-General, to discuss the country's economic and social problems.

The findings of the inter-agency mission confirmed that prolonged dry weather since september 1989 and unusually severe frosts and hail during the 1989-1990 agricultural year had destroyed crops and endangered livestock across the country. Furthermore, the critical effects of drought on malnutrition, health and employment were compounded by the social and economic situation.

Some 2.2 million subsistence farmers and pastoralists in the highlands are currently affected and, in marginal urban areas, vulnerable groups, particularly young children and pregnant or lactating mothers, are facing a drastically reduced water supply.

At the conclusion of the mission, its members prepared a detailed report, and UNDRO issued an international appeal, on behalf of the Secretary-General, for a six-month emergency programme (15 June to 15 December 1990) to assist the drought victims. The cost of such a programme has been estimated at US $85 million. This will include meeting the basic needs of the affected population, such as food and medical services, assisting in small water and soil conservation works, and providing supplementary food, water and other relief aid to vulnerable persons in marginal urban areas, mostly Lima.

The assistance programme will be carried out by a committee led by CARITAS and consisting of non-governmental organizations, which have a capillary network in affected areas, with the support of relevant governmental institutions and in close co-ordination with concerned United Nations agencies and community-based organizations. ■

US $106.4 Million Pledged at Mozambique Donors' Conference

A total of US $106,410,000 was pledged by 13 donors for emergency assistance to 1.4 million internally displaced Mozambicans and some 154,000 returnees from neighbouring States for 1990-1991. The pledges were made at the Special Meeting on Emergency Assistance to Mozambique that was held at Headquarters on 26 April at the invitation of the Secretary-General.

Of the total pledges US $40,150,000 was earmarked by donors for food aid, the single most critical need; $60,890,000 was unspecified multisectoral support; $4,500,000 was targetted for logistics, $830,000 for drinking water and $40,000 for relief and survival items. Pledges fell short by some $30 million of the 1990-1991 emergency requirements of $136,099,026 outlined in the appeal document prepared by the Government of Mozambique in collaboration with the United Nations.

A number of delegations, including France, Japan, Spain and the Soviet Union, indicated that they would support the emergency programme and that they were conducting discussions with the Government of Mozambique regarding new pledges or an increase of existing pledges.

According to sources in Maputo, the most critical shortfall relates to logistics, for which a total of $34 million was requested. As noted in the appeal document, the effect of other contributions will be weakened if they cannot reach the intended beneficiaries. It is hoped that further support for logistics may be forthcoming from donors that still have unallocated funds.

For its part, UNDRO has so far received for 1990/91, cash contributions of US $430,000 from the Government of Canada and a one million Ecus pledge from the European Economic Community (EEC). The Canadian funds are to be used to continue the service provided by UNDRO in chartering a small aircraft for the missions within the country to assess and evaluate the needs of affected people and for short notice emergency relief operations. These funds will also be used to maintain the presence of an UNDRO delegate to assist in monitoring emergency situations and to ensure execution of UNDRO's activities.

The EEC contribution will allow for the rehabilitation of the existing warehouse in Maputo and the completion of another one in Beira.

In addition, a computer specialist will be needed to process contribution data and to produce monthly priority requirement tables to be used as a key information tool for all those associated with relief activities.

In support of UNDRO's emergency programme in Mozambique, the Government of Ireland made a contribution of US $40,000, early this year, to be used as a 'quick-action' fund to respond to urgent needs.

When Government forces took control of Mugalama locality of Ile district in Zambezia province, after three years of occupation by RENAMO, an estimated 9,000 people were reported in urgent need of relief assistance. Apart from food and medical assistance, clothing was considered a priority since almost the entire population was dressed in rags.

In the framework of the Emergency Stockpile operated by UNDRO in Mozambique to supply relief and survival items to displaced populations, it was decided to use the Irish funds to purchase locally urgently needed clothing for women and children and also a quantity of soap to control the spreading of skin diseases.

An UNDRO officer flew to Quelimane on April 10 to take possession of the goods, to supervise the airlift into Mugalama and the distribution of the supplies to the population. The items were airlifted into Mugalama the following day, along with emergency medical kits from the UNDRO/CENE Emergency Stockpile. An UNDRO/UNDP/CENE team accompanied the first flight to the town. Mugalama was found to be totally destroyed, with most of its population lacking minimum shelter, and other basic supplies.

Due to the shortness of the airstrip the airlift had to be carried out with a small 1.2 ton capacity aircraft. A total of seven flights were made on 11-12 April for a total cost of US $6,000. ■

The people of Mugalama were found to be in dire need of basic supplies

Plans for Future Emergency Relief Operations in Liberia

UNDRO convened an information meeting, on 8 June, to outline, to representatives of major donor nations and other interested countries, the situation in Liberia and plans for an early resumption of United Nations emergency relief assistance to the populations displaced by the current crisis. Addressing the meeting were Mr. Michael Heyn, the UNDP/UNDRO Resident Representative in Monrovia, and Mr. Terry Lewis, the UNDRO delegate in Liberia, both of whom had recently been evacuated from the country with the UNDRO team of U.N. Volunteers. Also present were the representatives of the World Food Programme and UNICEF in Liberia, Mr. Gianpetro Bordignon and Mr. Anthony Raby, who spoke on behalf of their organizations.

Opening the meeting, the United Nations Disaster Relief Co-ordinator, Mr. M. Essaafi, said that UNDRO had developed a contingency plan to resume relief activities in Liberia as soon as circumstances permitted and the Secretary-General authorized the return of United Nations staff to the country. Mr. Essaafi commended the Resident Representative, the members of the UNDRO relief team, of which three United Nations volunteers, Médecins sans frontières (Belgium) and others, on doing "a wonderful job under very difficult conditions".

In his presentation, Mr. Heyn, the UN Resident Co-ordinator, stressed the spirit of co-operation which had caracterized all relief activities. Operations, he said, had benefited from the support of the Liberian Disaster Relief Commission, a high level of donor interest, the excellent experience of Non-Governmental Organizations involved and the close collaboration of United Nations agencies. In spite of increasing security problems, the UNDRO team and MSF had carried out 10 successful operations to distribute food and provide medical care to some 40,000 displaced persons between 6 April and 27 May in the counties of Bong, Grand Bassa and Lofa. In view of the critical shortage of food, the United Nations (WFP) were in the process of turning over 470 tons of available food stocks to Catholic Relief Services for distribution through local churches. UNICEF for its part was making its medical supplies available to MSF Belgium whose teams continued to operate in the country.

Looking to the future, Mr. Heyn said that the common goal was to return to Liberia and restart emergency relief to be followed by rehabilitation/reconstruction and development. In a first stage, he foresaw continued emergency relief for 500,000 displaced persons and returning refugees over a six-month period. For this, an immediate 3,500 MT of food and medical supplies would be required. He also called for an expanded UNDRO team of up to 16 persons, additional vehicles, radios and computers, additional medical teams and equipment, specialists in sanitary and civil engineering, and the strengthening of UN offices with additional personnel. Stage two, over the next twelve months, would focus on rehabilitation of the four most affected districts of Nimba, Bong, Grand Bassa and Rivercess, and the continuation of relief as necessary. Finally, he envisaged a four-year development programme to address economic recovery, increased agricultural productivity, basic social services and poverty alleviation.

The team of UNDRO/United Nations Volunteers is at present stationed in Dakar waiting for the situation to allow them to resume relief activities in the country. An additional four United Nations Volunteers are to be recruited with funding from the Government of the United Kingdom. ■

Appeal for Urgent Assistance to Angola

On May 10, 1990, the Secretary-General launched an appeal to meet the urgent needs of drought-stricken people in several provinces of central and southern Angola.

According to the report of an expert group, composed of representatives of the Angolan Government, United Nations Agencies and Non-Governmental Organizations who visited the affected areas, the drought, now in its fourth consecutive year, has already severely affected 800,000 people.

To meet the immediate needs for an initial fourth-month period,

(Continued next page)

After Chernobyl

In March 1990, UNDRO was approached by the Governments of the Soviet Socialist Republics of Bielorussia and Ukraine to help in launching an international relief effort to cope with the after-effects of the disaster. The Office immediately contacted United Nations agencies concerned, such as the World Health Organization (WHO) and the International Atomic Energy Agency (IAEA), with a view to establishing a concerted response to this appeal. Data were gathered on ongoing and planned activities of other United Nations agencies. Further discussions were held with the Permanent Representatives of the Byelorussian and Ukrainian SSR on the contents and specifications of the appeal.

On the occasion of the fourth anniversary of the event, the Disaster Relief Co-ordinator called upon the international community to extend maximum support to the two Soviet Republics in the efforts to combat the consequences of the disaster. He noted that, though the United Nations General Assembly had proclaimed the 1990s an International Decade for Natural Disaster Reduction, no such global effort existed to fight technological and industrial disasters. Yet an accident such as the one at Chernobyl could have the most serious, wide-ranging and long-lasting consequences on society and the environment on an international scale. Drawing from the lessons of Chernobyl, and in line with its mandate to promote prevention and mitigation measures for natural as well as man-made disasters, UNDRO is working with the United Nations agencies concerned in planning and elaborating a preparedness strategy for nuclear and other industrial installations, not only in the immediate vicinity of the plants but also in surrounding regions which may be at risk. The initiative of the Soviet Union in the framework of the United Nations for the establishment of a centre for emergency environmental assistance could make a valuable contribution in that regard.

As a token of solidarity, UNDRO lent its support to a fund-raising campaign organized among the staff of the United Nations Office at Geneva, in line with a similar action at United Nations Headquarters in New York.

At the present time a major international project to assess the radiological consequences of the Chernobyl accident and to evaluate the measures taken so far is being organized by the IAEA together with other United Nations agencies. A team of independent international experts will assist in carrying out the assessment.

In July, the Economic and Social Council of the United Nations is scheduled to examine a draft resolution entitled "International co-operation in the elimination of the consequences of the accident at the Chernobyl nuclear power plant", calling for an inter-agency mission of all United Nations organizational and entities concerned. The Secretary-General has designated the Economic Commission for Europe to co-ordinate such a mission. Member organizations of this mission would assist the Secretary-General in preparing proposals for a programme of international co-operation for the elimination of the consequences of the accident at Chernobyl, taking into account the findings of the international assessment project mentioned above. ■

Appeal for Urgent Assistance to Angola

the Secretary-General appealed for a minimum of 45,000 mt of food aid. Basic drug kits and medical equipment to minimize the effects of malnutrition, well-drilling equipment, agricultural tools, and vehicles for food aid distribution. US $500,000 will be needed to airlift food into otherwise inaccessible areas, to increase storage capacity and to provide technical assistance.

UNDRO is currently undertaking to recruit a logistics delegate, and a computer specialist to support the activities of the Government and of the United Nations Emergency Group, in monitoring the flow of relief supplies. Funds for the procurement of computer equipment for the Angolan National Emergency Unit have also been provided. Since relief efforts focus mainly on the food sector, the World Food Programme is playing the leading role in this humanitarian effort. ■

Secouristes Volontaires en Colombie

Appui de l 'Action d'Urgence Internationale à des Associations d'Etudiants

L'éruption du volcan Nevado del Ruiz a mis en évidence la nécessité de développer un programme de prévention des catastrophes naturelles dans la région d'Armero, où les risques sont nombreux (éruptions volcaniques, inondations). C'est pourquoi l'Action d'Urgence Internationale, organisation non gouvernementale dont le siège est à Paris, soutient les actions entreprises par les Secouristes Volontaires de l'Université de Tolima.

Travaux de canalisation pour le village de Villamaría, Colombie, où une cinquantaine de maisons seront construites pour les rescapés d'Armero. (Projet co-financé par l'UNDRO).

Le 13 novembre 1985, l'éruption du volcan Nevado del Ruiz en Colombie entraîne la disparition du village d'Armero, situé à plus de 45 km du cratère. Bilan : 23.000 morts et des dizaines de milliers de sans abris. Les premiers secours, organisés - notamment par des étudiants - à partir d'Ibague, capitale de la province de Tolima où est situé le volcan, permettent, dès l'arrivée sur le terrain, de constater que des actions de prévention et d'éducation populaire auraient permis d'éviter un bilan aussi lourd. En effet, prévenue à temps, entraînée grâce à des exercices d'évacuation rapide, la population d'Armero aurait pu se réfugier sur les collines surplombant la ville.

Une fois la phase des secours d'urgence achevée, ces étudiants créent le S.V.U.T. (Secouristes Volontaires de l'Université de Tolima), dont les priorités sont la prévention, les secours et la reconstruction à la suite de catastrophes naturelles. La nécessité de se former et de s'équiper les mène à faire appel à l'Action d'Urgence Internationale, qui avait envoyé sur le terrain une équipe de spécialistes des situations d'urgence, à la suite de la catastrophe, avec pour mission de secourir les survivants ainsi que d'identifier des partenaires souhaitant mener des actions de prévention ou de secours. L'Action d'Urgence Internationale accepte de soutenir les Secouristes Volontaires.

Ainsi, de 1987 à 1990, un programme de formation et d'équipement est mis en place. Ce programme comporte l'envoi de moniteurs européens et latino-américains pour animer des stages de secourisme, de prévention et de reconstruction, en collaboration avec des spécialistes locaux.

Actuellement, les activités des Secouristes Volontaires de l'Université de Tolima se développent (éducation à la prévention dans les collèges, interventions d'urgences, formation de nouveaux membres, soutien aux initiatives de base des communautés menacées par les inondations, les glissements de terrain et autres catastrophes naturelles.) Leurs contacts avec d'autres associations se multiplient, notamment avec une association étudiante de Bogota. Reconnu par l'Université de Tolima et par les autorités locales, le S.V.U.T. a récemment été admis au sein de deuxcommissions locales pour l'éducation populaire et la sauvegarde. (Comité Regional de Emergencia).

L'Action d'Urgence Internationale prévoit une continuation de la collaboration avec les associations étudiantes colombiennes en 1990. Ces associations poursuivent leurs contacts avec les communautés vivant dans les zones à hauts risques de catastrophes naturelles, afin d'élaborer avec elles un ou deux projets de prévention que l'Action d'Urgence Internationale pourrait soutenir. ■

Des chiens au secours des victimes de catastrophes

Il y a plus de vingt ans qu'ils sont entrés en action, ces étonnants K-teams destinés à secourir les victimes des catastrophes.

C'est vers la fin des années soixante que le Suisse Urs Ochsenbein, conducteur de chiens d'avalanche, a développé une méthode de dressage du chien permettant de retrouver les personnes ensevelies sous les décombres à la suite de tremblements de terre, d'éboulements ou d'explosions. En 1972, M. Ochsenbein, a publié en allemand le premier manuel d'instruction relatif à cette nouvelle catégorie de chiens de travail, le chien de catastrophe (en allemand "Katastrophenhund", d'où le nom donné à l'équipe composée du conducteur et de son chien : le "Katastrophenhunde-Team" ou K-team).

Depuis la première intervention des K-teams en 1968, cette nouvelle discipline s'est progressivement implantée, non seulement en Suisse mais également dans d'autres pays, notamment sur la base des résultats obtenus lors du tremblement de terre qui fit 1200 morts au Frioul (Italie du nord), en 1976. Cette fois là, 12 K-teams suisses permirent de dégager 16 survivants.

A l'heure actuelle, la Suisse compte plus de 80 K-teams qui ont passé avec succès un examen d'aptitude et qui sont donc susceptibles d'être mis à contribution. Les K-teams sont regroupés, depuis 1971, en une association, la "Société suisse pour chiens de catastrophe."

A. Tuma - SSCC Genève

A la recherche de survivants

Les Etats-Unis, la France et la République fédérale d'Allemagne, ainsi que l'Autriche, la Bulgarie, le Canada, l'Islande, Israel, l'Italie, la Norvège, la Nouvelle-Zélande, le Mexique, le Royaume-Uni et la Suède, disposent également, à des degrés différents, d'équipes aguerries prêtes à entrer en action lorsque les circonstances l'exigent. Des K-teams sont aussi en voie de formation dans d'autres pays qui ont été frappés par des cataclysmes.

C'est le cas notamment de la Colombie, dont la ville de Popayan avait été durement éprouvée par le séisme de 1983 (plus de 250 morts et 1200 blessés), et de la République soviétique d'Arménie, où plusieurs milliers de personnes avaient perdu la vie lors du tremblement de terre de décembre 1988. En Arménie, des K-teams de plus de 12 pays avaient été dépechés pour tenter de retrouver les personnes enfouies sous les décombres. Depuis, des spécialistes suisses

pour la Colombie et français pour l'URSS ont entrepris - dans le cadre de l'aide internationale - la formation de responsables locaux en vue de dresser des chiens à ce type de sauvetage.

"Un entraînement régulier du chien et de son conducteur est le garant du maintien de la bonne condition physique et psychologique des deux partenaires"

Les équipes de chiens de catastrophe font habituellement partie d'organismes nationaux tels que les services de protection civile, les sapeurs-pompiers, la police et la gendarmerie, l'armée et la Croix-Rouge. D'autres fonctionnent dans le cadre de leur affiliation à des associations cynophiles locales, et se tiennent bénévolement à la disposition des services gouvernementaux responsables. (On trouvera en annexe une liste des principales associations et unités cynophiles spécialisées dans la recherche et le sauvetage en cas de catastrophe.)

Afin de pouvoir répondre sans délai à un ordre de mission, le conducteur doit impérativement avoir chez lui, en permanence, tout le matériel nécessaire à lui-même et à son chien, y compris la nourriture pour toute la durée de la mission, habituellement de trois à quatre jours. Bien que ce matériel soit très lourd, et que le conducteur ait parfois à en assurer lui-même le transport depuis le lieu de débarquement jusqu'à celui du sinistre, un nombre croissant de femmes s'engagent, avec conviction et succès, dans ce type de travail. Les instructeurs leur reconnaissent d'ailleurs des qualités de "lecture du chien" tout à fait remarquables.

"Cet engagement implique une attention et une discipline constantes pour assurer une entière disponibilité. Un entraînement régulier du chien et de son conducteur est donc le garant du maintien de la bonne condition physique et psychologique des deux partenaires", nous confiait récemment Caroline Hébard, conductrice de chien. Mme Hébard, principale responsable aux Etats-Unis des K-teams qui travaillent en étroite coopération avec l'Agence américaine pour l'aide en cas de catastrophe à l'étranger (OFDA), dans le cadre de l'équipe "US/SAR Disaster Response*", était de passage à Genève lors du séisme qui secoua la ville de San Francisco, en octobre dernier. Tout en restant en contact 24h sur 24 avec son bureau en Californie, en vue d'une éventuelle intervention de chiens dressés pour les recherches subaquatiques suite à l'effondrement d'une section du Bay Bridge, (pont situé sur la Baie de San Francisco), Mme Hébard a profité de sa visite à l'UNDRO pour illustrer ses responsabilités dans ce domaine.

Une instruction spécifique sanctionnée par un brevet d'aptitude et une homologation officielle sont à la base de toute formation de K-teams qualifiés

Une instruction spécifique sanctionnée par un brevet d'aptitude et une homologation officielle sont à la base de toute formation de K-teams qualifiés. Des écoles spécialisées - dont deux exemples sont donnés ci-après - ont été créées à cet effet. En France, le Centre national de chiens de sauvetage de la sécurité civile de Briançon fondé en 1979 est dirigé sur le plan technique par François Rostolland. Ce Centre, le seul dans le pays à être habilité à délivrer le Brevet de maître-chien de recherche et de sauvetage en décombres, dispense une instruction dont bénéficient en premier lieu les équipes cynophiles rattachées aux Unités d'intervention de la sécurité civile (UISC), susceptibles d'être dépêchées sur les lieux de grandes catastrophes. L'UISC No. 1 de Nogent-le-Rotrou, près de

2º SIMPOSIUM INTERNACIONAL
DE PERROS DE RESCATE
POR UNA CINOFILIA A LA MEDIDA DEL HOMBRE
Cd. de México del 9 al 12 de Marzo 1988.
• ESCUADRA MEXICANA DE PERROS DE CATASTROFE TEL 271-47-03 595-57-74
• CONFEDERACION DE ASOCIACIONES CANOFILAS DE LA REPUBLICA MEXICANA TEL 554-45-48
• ESCUELA PROVINCIAL DE PERROS DE BUSQUEDA Y CATASTROFE DE LA PROVINCIA AUTONOMA DE TRENTO, ITALIA.

**SAR: Search and Rescue (Recherche et sauvetage) n.d.r.*

(Continued on page 19)

Working Towards Natural Disaster Reduction

The World Meteorological Organization Contribution

Dr. John C. Rodda
Director, Hydrology and Water Resources Department
World Meteorological Organization

In an attempt to alter attitudes and change reactions to natural disasters, the International Decade for Natural Disaster Reduction (IDNDR) was launched on 1 January 1990 as the first globally concerted effort to reduce the impact of natural hazards. The Decade plans to achieve these aims by instituting an integrated approach to disasters, by stimulating data acquisition for their application in more widespread forecasting and warning systems, by making improvements in disaster preparedness and by changing the sometimes fatalistic attitudes to disasters. Increased community participation and more and better education and training will be very important components of the Decade. Achievement of these aims will cause a change in the basic approach to disasters, from the present concentration on post-disaster relief to a future emphasis on pre-disaster preparedness.

PAGASA Photo

Damage to buildings in the Philippines caused by typhoon Rubing in October 1989

During the course of a year this planet experiences countless extreme weather events: typhoons and thunderstorms, tornadoes and heatwaves, together with events related to them like floods, droughts, bushfires and locust infestations. Many of these occurrences result in disasters - people are killed and property damaged, most frequently in those parts of the world which are least able to withstand such events. Take the tropics as an example. On average, over the last 20 years, about 80 tropical cyclones (which are called typhoons in the Pacific and hurricanes in the Caribbean and Gulf of Mexico) were recorded annually. Over half a million people died during this period, while property damage in one year alone exceeded US $6 billion. Most suffering occurred where there were inadequate systems for warning and preparedness, usually in developing countries. That is not to say that other parts of the world are immune from the impact of natural hazards which are the concern of meteorologists and hydrologists. Few areas are safe from flooding, for example; even the driest deserts suffer flash floods and temperate regions can experience severe and widespread flooding resulting from a number of different causes.

Since international collaboration in meteorology began some 140 years ago, the need to counter impending natural disasters has been the prime reason for this co-operation. Now the World Meteorological Organization, with its Secretariat in Geneva, and the meteorological and hydrological services of its 161 Members, devotes a major part of its efforts to disaster mitigation, through the various WMO programmes and similar regional and national initiatives. While many of these efforts are funded by WMO, substantial funds from UNDP and like bodies flow through it into technical assistance projects in meteorology and hydrology.

At the heart of WMO activities is the World Weather Watch (WWW) *(Figure 1)*. This is a unique global system that provides for the *real time* exchange of observations of weather world wide; from some 10 000 ground-based stations, numerous ships, a large number of weather radars and eight weather satellites. These data are exchanged by nations rapidly and in standard form, through the global telecommunications network using satellite, cable and VHF/UHF radio transmissions which form the global telecommunications system (GTS). They are received and processed at World, Regional and National Meteorological Centres on some of the world's largest computers with the use of complex models of the atmosphere to simulate the synoptic systems which govern the day to day weather. These models are employed to produce the forecasts and warnings, issued for a variety of purposes and products, which are also disseminated through the GTS. Such exchanges of information are essential for the detection and tracking of severe storms, the forecasting of heavy rainfalls and floods

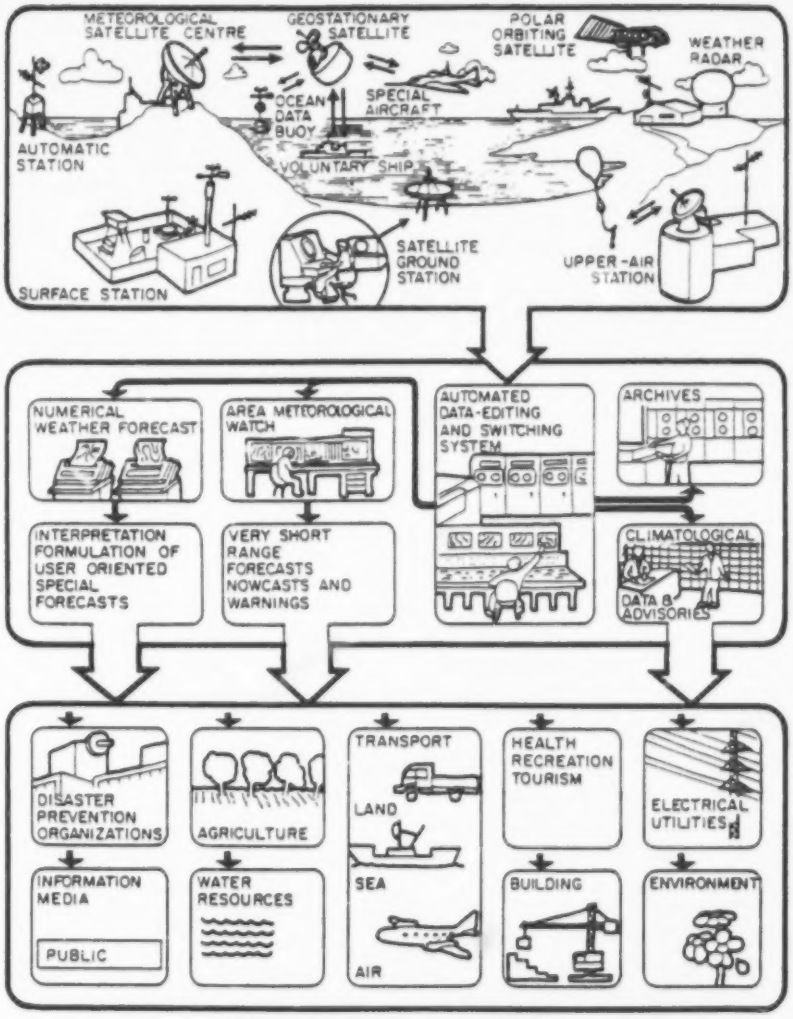


Figure 1 - The concept of WWW

The operation of a national Meteorological Service: observations and data collection (top), data processing and preparation of forecasts, warnings and climatological advisories (centre), dissemination of forecasts and other specialized information to users (bottom).

and for issuing warnings of adverse weather conditions of all types.

These are the main concerns of the World Weather Watch, but the GTS is also used for other purposes, such as dissemination of level I seismic data and nuclear accident warnings. Obviously, the WWW is basic to the aims and activities of the IDNDR, for without it the World would lack its main defence against the hazards of the fluid earth - the atmosphere and hydrosphere. During the course of the Decade it is probable that the WWW will be utilized for the collection, transmission and processing of other types of geophysical data, so that the defences against the other hazards will be increasingly strengthened.

WMO promotes and maintains a number of major scientific programmes relevant to the Decade, but the most pertinent are those concerned with tropical cyclones, The Tropical Cyclone Programme

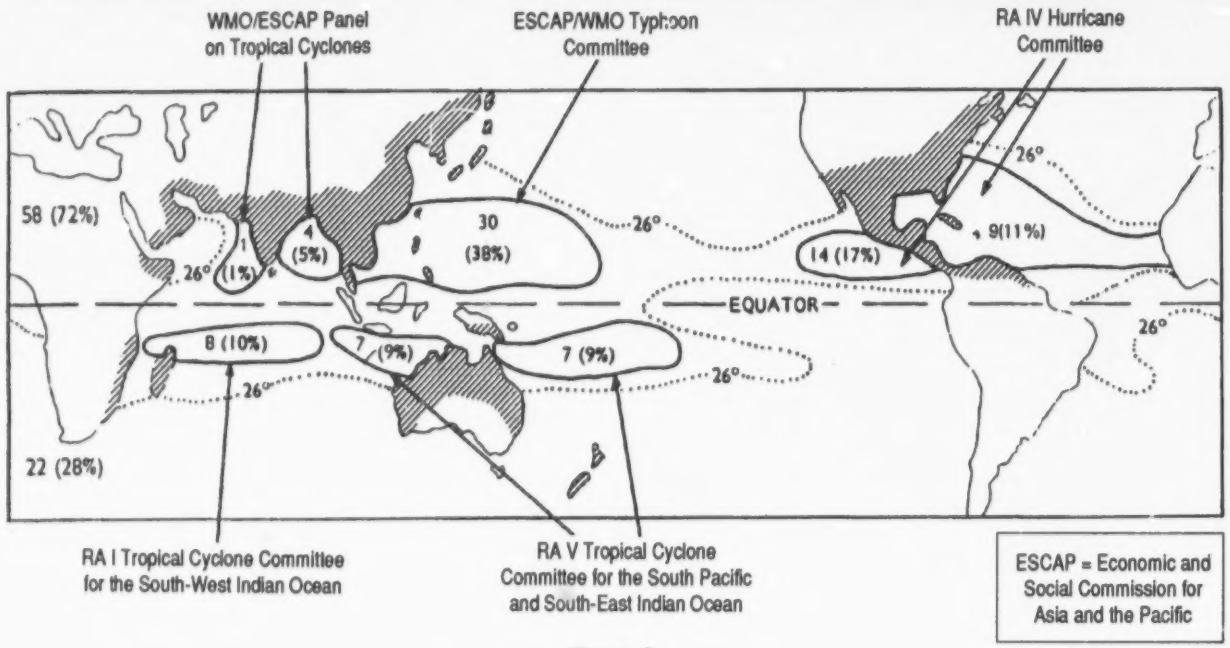


Figure 2

The global occurrence (numbers and percentages) of tropical cyclones. Cyclones form only where sea temperature exceeds 26°C (dotted line); the land areas affected are shown hatched (after W.M. Gray, 1975). The names of tropical cyclones bodies and the basins covered by their programmes are also indicated.

(TCP) and floods, the Hydrology and Water Resources Programme (HWRP).

National and regional tropical cyclone warning and preparedness activities are fostered by:

- Transfer of technology and methodology;
- Support to five regional co-operative prediction and warning systems;
- Co-ordination and promotion of research results for operational use;
- Co-operation with disaster preparedness agencies, both international (e.g. UNDRO and the Economic Commissions) and national.

The five regional tropical cyclone bodies *(Figure 2)* have regional co-operation programmes and have formulated operational plans for dealing with tropical cyclones. The activities of four of the five bodies are partly supported by UNDP/WMO regional technical co-operation projects and partly by funding from national and other sources. The exception is the South-West Indian Ocean body which has not yet received external support. The ESCAP/WMO Typhoon Committee, the regional body responsible for the countries from China to Malaysia, and the oceans to the east, received the UNDRO/ SASAKAWA Disaster Prevention Award in 1988 for its activities in countering the effects of typhoons.

The objective of these activities is to assist Members in minimizing loss of life and damage from tropical cyclones through strengthening their capabilities to:

- detect, track and forecast the approach and landfall of tropical cyclones;
- provide forecasts of heavy rainfall and strong winds resulting from tropical cyclones;
- apply the most appropriate techniques of quantitative storm surge prediction;
- forecast floods;
- provide the basic data on the risk of losses due to wind, storm surge, flood and landslide, to meet the needs for preparedness, planning and other purposes;
- organize and execute the essential disaster prevention and preparedness measures, making use of meteorological and hydrological information and expertise.

In the Caribbean and adjacent areas, these destructive weather systems with winds reaching speeds in excess of 120 Kmph are called hurricanes. One of the most notorious in recent years was Hurricane Gilbert, which moved on a very

(Continued on page 17)

UNDRO at Work

(April - May 1990)

RELIEF: MOBILIZATION AND CO-ORDINATION

■ **Angola:** Funds have been provided by UNDRO for the acquisition of computer equipment for the Angolan National Emergency Unit. The Office is currently undertaking the recruitment of a logistics expert and a computer specialist. *(See article page 7).*

■ **India:** UNDRO has issued three information reports, following the worst cyclone to strike the southern Indian State of Andra Pradesh in more than a decade. The cyclone caused the death of several hundred persons and affected over 6.5 million people.

■ **Indonesia:** UNDRO has issued two information reports on an earthquake measuring 6.5 on the Richter Scale which occurred in Minhassa peninsula on April 18.

■ **Lebanon:** In April and May, the Minister of Health and Social Affairs and President of the High Relief Committee, Dr. A. El Rassi, the General Executive of YMCA Lebanon Mr. G. Sayah, and the newly appointed Officer-in-charge of the UNDP Office in Beirut Mr. Abu Jawdeh, came to UNDRO to discuss with the Co-ordinator and Relief Co-ordination Branch staff the present emergency situation. Further deterioration of the internal situation in Lebanon has increased the number of displaced people. It is estimated that about one third of the population (over one million) has been displaced or made homeless. Consensus was reached, during the discussions, on the need to organize a meeting with the donor community in late June in order to raise more funds for emergency relief.

Several UNDRO projects, funded by the European Economic Community, are currently being implemented:

- the distribution of non-food items for a value of over US $770,000 carried out through local NGOs, is nearing completion;
- emergency repairs to the water supply system through UNICEF, (value US $1million) are due to begin;
- emergency repairs to the electricity supply network (over US $2 million) will be carried out by *Electricité du Liban,* under the supervision of UNDP/UNARDOL.

■ **Mongolia:** UNDRO issued an information report on raging steppe and forest fires in Eastern and Northern Mongolia at the end of May. Preliminary damage was estimated at US $110 million.

■ **Peru:** In mid-May, at the request of the Secretary-General, an Inter-Agency mission headed by an UNDRO delegate went to Peru to assess emergency needs resulting from the drought. *(See article on page 5).*

* *** *

■ An information report was issued on 31 May, following a strong earthquake in Northern Peru, measuring 5.8 on the Richter Scale. An official request for international assistance was received from the Government in early June. Subsequently, UNDRO issued an appeal.

■ **Somalia:** In mid-April 1990, following torrential rains and at the request of the UN Emergency Unit in Mogadishu, UNDRO organized an airlift of shelter material and supplementary food to Berbera in Northern Somalia. As UNDRO was also airlifting various relief supplies to Tanzania (see entry on Tanzania) it was decided, for reasons both of economy and practicality, that a single aircraft would fly from UNDRO's emergency warehouse in Pisa, Italy, first to Tanzania, and then to Somalia. The relief supplies for Somalia were donated by the Governments of Italy and Norway. In the framework of the United Nations Secretary General's Extraordinary Interim Emergency Programme of Assistance to Refugees, UNDRO also undertook to airlift, within Somalia, lubricants and other supplies urgently needed in Berbera.

■ **Sudan:** A series of earthquakes hit southern Sudan between 19 and 26 May. No major damage or loss of life was reported by the UNDRO representative who visited the affected areas. UNDRO issued two information reports.

■ **Tanzania:** In early April, floods caused by heavy rains destroyed thousands of dwellings in Southern Tanzania. At the Government's request, UNDRO launched an international appeal for assistance on 14 April and provided an emergency relief grant. An UNDRO-chartered aircraft *(see entry on Somalia)* flew to Dar Es Salaam with six tons of relief supplies (tents, plastic sheets, water tanks) from the Japanese-donated stocks held in UNDRO's Pisa warehouse. The total cost of the airlift to Tanzania and Somalia, financed by the Governments of Italy, Japan and Norway, amounted to US $260,000.

DISASTER MITIGATION

■ **China:** An UNDRO official has carried out a mission to identify mitigation needs in China. He met with officials from the Civil Affairs (in charge of relief), the National IDNDR Committee, the Ministry of Construction, the China Academy of Urban Planning and Design, and others. Discussions focussed on UNDRO's support for an integrated management center in China, a long-term agreement for co-operation, and the initiation of pilot projects at village level for various types of hazards.

■ **Ecuador:** An UNDRO representative carried out a mission to Ecuador from 23 April to 2 May to review UNDRO's Disaster Mitigation Project, draft a new project document for the continuation of current activities, and participate in a tripartite (National/Government / UNDRO/UNDP) meeting on future disaster preparedness and prevention activities in Ecuador. He was also a keynote speaker at a Seminar on National

Disaster Management, organized by the National Diplomatic Academy and PAHO.

■ **Haiti:** An UNDRO/UNDP project to assist the Government in responding to natural disasters is now underway. As a first step, an UNDRO co-ordination officer and a consultant drew up guidelines for the project. The objectives include institutionalized relief co-ordination procedures as well as preparation of a national disaster plan.

■ **Paraguay:** At the request of the Government, a co-ordination officer visited Paraguay from 7 to 10 May to assist in the preparation of a Presidential Decree aimed at creating a National Emergency Council. In addition a draft work programme for a planned flood disaster mitigation project was prepared.

■ **Somalia:** Following the flooding of the Shabelle River, *(see item under "Relief")* the Government requested in May the services of a flood mitigation expert to advise on the improvement of flood relief canals, and the maintenance of river banks. UNDRO has begun preparations to set up the mission.

■ **South Pacific:** Three consultants and one disaster mitigation officer visited a number of island countries in South Pacific in April and May to assess the needs for UNDRO support in the initiation and execution of disaster mitigation projects. The countries visited were: Fiji, Papua New Guinea, Western Samoa, Solomon Islands, Tonga and Vanuatu.

■ **SASAKAWA/UNDRO Award:** A Peruvian engineer, Prof, Julio Kuroiwa, specialist in the preparation and promotion of disaster mitigation projects in the Latin American region, has been chosen to receive the 1990 SASAKAWA/UNDRO Award by a five-member international jury which met in Geneva on 25-26 April. The presentation of the Award is scheduled for 5 July 1990 in Geneva.

■ **SEISMED:** In the context of the UNDRO/UNDP project for seismic risk reduction in the Mediterranean region, a Workshop on Seismic Hazard Assessment took place in Santa Margherita Ligure, Italy, from 7 to 11 May 1990 and was attended by representatives from 13 Mediterranean countries.

This workshop, the first major activity undertaken by the project, gave participants the opportunity to share their experience in dealing at the national level with micro and macrozonation in seismic zones and to discuss the important issue of better connections between scientists/technicians and land-use planners, public administrators and policy makers.

The proceedings of the workshop will be published in the coming months.

INFORMATION, COMMUNICATIONS, EXCHANGE OF VIEWS AND CONTACTS

■ **OUA/UN Meeting:** A senior co-ordination officer represented UNDRO at a meeting of the Organization of African Unity and the United Nations, in Addis Abeba, from 2 to 6 April, to discuss co-operation programmes in 1990-1991. UNDRO presented a plan of action, concerning the transit of relief goods in African countries, a project for displaced persons in southern Africa, and the preparation of a survey of natural disasters in the continent with a view to creating sub-regional disaster management centers.

■ **Pan Caribbean Disaster Preparedness and Prevention Project (PCDPPP):** The Chief of the UNDRO Relief Co-ordination Branch attended the annual meeting of National Relief Co-ordinators in Barbados on 7 - 8 May. Twenty-four out of the twenty-nine PCDPPP member countries were represented. The present situation of each country and follow up activities after 1990, were discussed.

Subsequently, the Chief of Branch attended a meeting organized by USAID on housing problems in cyclone-prone countries.

From 14 to 16 May, meetings took place with local authorities in Antigua and with the UNDRO/PAHO/LRCS teams, as well as with UNDRO's consultant for the PCDPPP who is currently carrying out an evaluation mission to be completed in July.

■ **A Governmental Delegation from Mozambique** met with the Co-ordinator and representatives of some donor countries, at UNDRO's headquarters in Geneva on 20 April. The delegation then proceeded to New York to attend the Mozambique donor conference on 26 April.

■ **USSR Mission to UNDRO:** A three-man delegation, headed by Mr. I. Drozdov, Chief of the Information Department, State Commission on emergency Situations of the Council of Ministers of the USSR, visited UNDRO from 21 to 25 May 1990. The other members of the delegation were Messrs. V. Antsipovich, Director of the Main Computer Centre and L. Bezrouk, Director of the Main Meteorological Telecommunication Centre, were from the State Committee (Ministry) on Hydrometeorology, the governmental body responsible for all hazard monitoring in the country, and the national focal point for the implementation of the IDNDR. The mission focussed on practical arrangements for the exchange, through UNIENET, of the information available in UNDRO's data bank.

■ **FRG/IDNDR/UNDRO Mission:** The Chief of the IDNDR Secretariat took part in a fact-finding mission on disaster management plans in Australia, Canada, Japan, Thailand and the United States, organized by the Federal Republic of Germany from 22 April to 6 May. The Director of UNDRO participated in the mission in Canada and the USA.

■ **Protection of Human Life and Civil Defence Seminar:** From 5 to 7 April 1990, the Co-ordinator attended the above mentioned seminar, organized by the International Institute of Humanitarian Law in collaboration with the Italian Red Cross, in Taormina, Italy.

Participants included, among others, the Secretary General of the International Civil Defence Organization (ICDO) and representatives of the LRCS, the ICRC and national civil defence organizations from all parts of the world. In his adress, Mr. Essaafi highlighted UNDRO's role in disaster relief operations.

■ **"Round Table on the Movement of People: New Developments":** The Co-ordinator attended this round table organized by the International Institute of Humanitarian Law, in close collaboration with the International Office for Migration, on 3 to 5 May, in San Remo, Italy.

■ At the invitation of the **French Secretary of State for Humanitarian Affairs**, Mr. B. Kouchner, the Co-ordinator adressed a meeting of newly-appointed French Embassy Attachés for Humanitarian Actions, in Paris, on 18 May.

■ **International Search and Rescue Teams:** At the invitation of USAID, two UNDRO relief co-ordination officers represented UNDRO at a meeting of International Search and Rescue Teams, organized in May by the US Office of Foreign Disaster Assistance (OFDA) and NASAR, in Phoenix, Arizona, USA. Strong support was expressed for the proposed 1991 UNDRO Workshop. One of the two officers then proceeded to Washington for consultations with OFDA.

* *** *

■ UNDRO was represented at a meeting of European Search and Rescue Teams of Austria, the Federal Republic of Germany and Switzerland, held in Rheinfelden (FRG) from 28 May to 1st June.

* *** *

■ On the basis of a NERS III recommendation, UNDRO is currently compiling a Directory of Search and Rescue Teams that could be of assistance to recipient and donor countries in major sudden impact disasters.

■ **A Memorandum of Understanding** was signed on 29 March between the Office of the United Nations Disaster Relief Co-ordinator (UNDRO) and the Hazard Reduction and Recovery Center, College of Architecture of the Texas A & M University, (HRRC) designed to foster co-operation in the fields of disaster mitigation and disaster response.

■ **LRCS/UNDRO Meeting:** At the invitation of the Secretary-General of the League of Red Cross and Red Crescent Societies, a number of UNDRO staff members with the Co-ordinator and the Director, met with senior League officials, at the League Secretariat, on May 31. The purpose of the meeting was to exchange views and to strengthen co-operation in areas of mutual interest.

■ The **Chief of the WHO Emergency Preparedness and Response Unit** from the World Health Organization, met with the Director and some UNDRO staff members on 19 April. Matters related to UNDRO/WHO co-operation were discussed.

■ The **Director of the Emergency Preparedness and Disaster Relief Co-ordinator Programme of the Pan American Health Organization (PAHO)** visited UNDRO on June 1. UNDRO/PAHO projects and closer co-operation were on the agenda.

■ **Seminar on Training for Disaster Reduction:** UNDRO and the IDNDR Secretariat were represented at this seminar organized by the Disaster Emergency Reference Center of the Delft University of Technology to discuss training materials for disaster reduction. The seminar took place under the auspices of UNESCO. In association with UNDRO, UNESCO is planning to prepare two training compendia, with training modules for policy makers, planners and communities focussing on floods and earthquakes and addressing the entire disaster cycle.

■ **UNDP Resident Representatives** from **Colombia, Jamaica** and the **Republic of Korea** visited UNDRO in April and May to give an update on the situation in their countries and to be briefed on the activities of their Office.

■ **Visitors to UNDRO's Headquarters in Geneva during the months of April and May, included:** H.E. Dr. N. Tyambo, Minister of Health of Namibia, Count Westphalen responsible for International Organizations within the Ministry of Finance, Federal Republic of Germany, Mr. F. Arsenault, Director of the Canadian International Development Agency and Ms. S. Greaves also from CIDA, Mr. Nissim Tal, Director of the Planning and Co-ordination Office of UNDP.

■ **UNDRO Office New York:** The Director of the UNDRO Office in New York attended four meetings of the African Emergency Task Force in New York during the months of April and May. Chaired by the Representative of the World Food Programme, the task force reviewed the situation as well as proposed United Nations Action in Angola, Ethiopia, Liberia, Mozambique and the Sudan.

* *** *

■ The Director also took part in the 15th Biennial Conference of USAID/OFDA and private voluntary organizations, in Maryland (USA) from 23 to 25 May, and made a formal presentation on recent UNDRO/NGO's initiatives. ■

UNDRO Warehouse in Pisa

Goods donated by the Governments of Finland, Italy, Japan and Norway

Blankets
- 150X200 cm (80% wool)
- 150X210 cm (50% wool)
- 150X220 cm (60% wool)

Tents
- (12.5 m2)
- (24 m2)
- (32 m2)
- (43 m2)
- (46 m2)
- (240 m2)

Plastic water tanks
- (3,000 l)
- (3,500 l)
- (7,500 l)

Jerrycans (15 l)

Tarpaulins (24 m2)

Plastic sheeting
- (365 m2)
- (400 m2)

Plastic bags
- (50 l)
- (100 l)

Plastic pails

Generators
- (4 kva)
- (6.5 kva)
- (12 kva)

Trailers for generators

Transformers

Extensible cables (50 m)

Kitchen sets

Family kits

Mallets

Pickaxes

Saws

Shovels

Spades

Nylon rope (reels 200 m)

Thermic containers

Radio equipment (walkie-talkies)

Rubber boats with 25hp engine (8/10 persons)

A kitchen set is composed of various cooking and table utensils.

A family kit includes a kitchen set, two jerrycans, various hand tools, a petroleum lamp, matches, soap and water purification tablets.

For further details and information on availability of goods in stock, please call UNDRO Geneva 7346011 - Ext.: 3290.

Working Towards Natural DisasterReduction

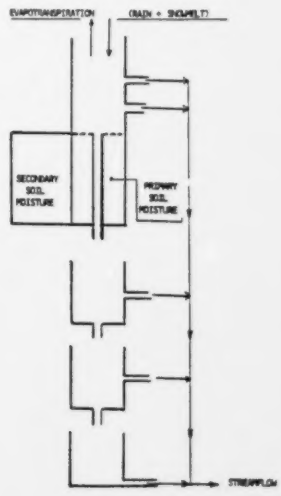
(Continued from page 11)

regular path from the eastern Caribbean to hit Jamaica and then the Yucatan Peninsula in mid-September 1988. Gilbert was tracked by the Regional Hurricane Center in Miami and by other national centres which issued forecasts of its progress and warnings of severity. These warnings were effective, in Jamaica, in reducing the number of deaths to 45, by comparison with the 152 deaths caused by the much smaller Hurricane Charlie in 1951.

While there is a floods component within the TCP, the major part of WMO's work on floods is carried out within the Hydrology and Water Resources Programme (HWRP), for floods are undoubtedly the most ubiquitous of natural hazards, claiming more lives and damaging more property than most other similar phenomena. The main thrust of the work on floods is concerned not only with developments in hydrological forecasting procedures, but also with improvements to the instruments and the data they produce which are employed in the forecasts. For example, a recent report summarized the results of a 10-country comparison of the current meters and the water level recorders which are needed to measure river flows. Then there have been a number of comparisons of the hydrological models used for forecasting: the comparisons have usually involved tests of the performance of a number of models on sets of data from a number of hydrologically different river basins. In one such comparison of real time forecasting models undertaken at the University of British Columbia in 1987, 13 models from 10 countries were run, some on the mainframe computer and the others on microcomputers. Models of snowmelt runoff were compared in an earlier test, 11 models from eight countries were first calibrated on one-half of the data from six basins and then verified on the other half. One example of the results, in this case for the Japanese Tank Model used with data from the River Durance in France, is shown in *Figure 3.* The measured daily flows of the Durance are matched against the flows predicted by the model for one year; some periods show good agreement while for others, particularly the spring snowmelt, the agreement is less satisfactory, indicating some further adjustment of the model is necessary.

Employing models of this type and other more sophisticated versions in a flood forecasting system will provide warnings which can save lives and lessen damage to property. Even warnings for as little as three hours ahead have been found to be of considerable value: they allow property to be moved from threatened dwellings and other measures to be taken to reduce the effects of the impending flood. Perhaps some of the most effective systems are deployed in Western Europe, Japan and the USA where the rainfalls recorded by weather radar networks *(Figure 4 shows the network for the British Isles)* are fed into hydrological models to provide flood forecasts for a number

TANK MODEL



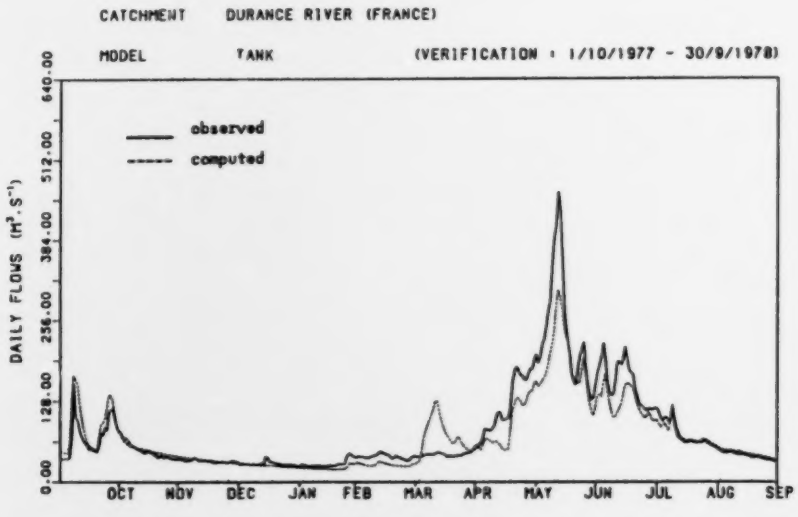


Figure 3

The conceptual basis of the Tank Model and its application to predict the flow of the River Durance

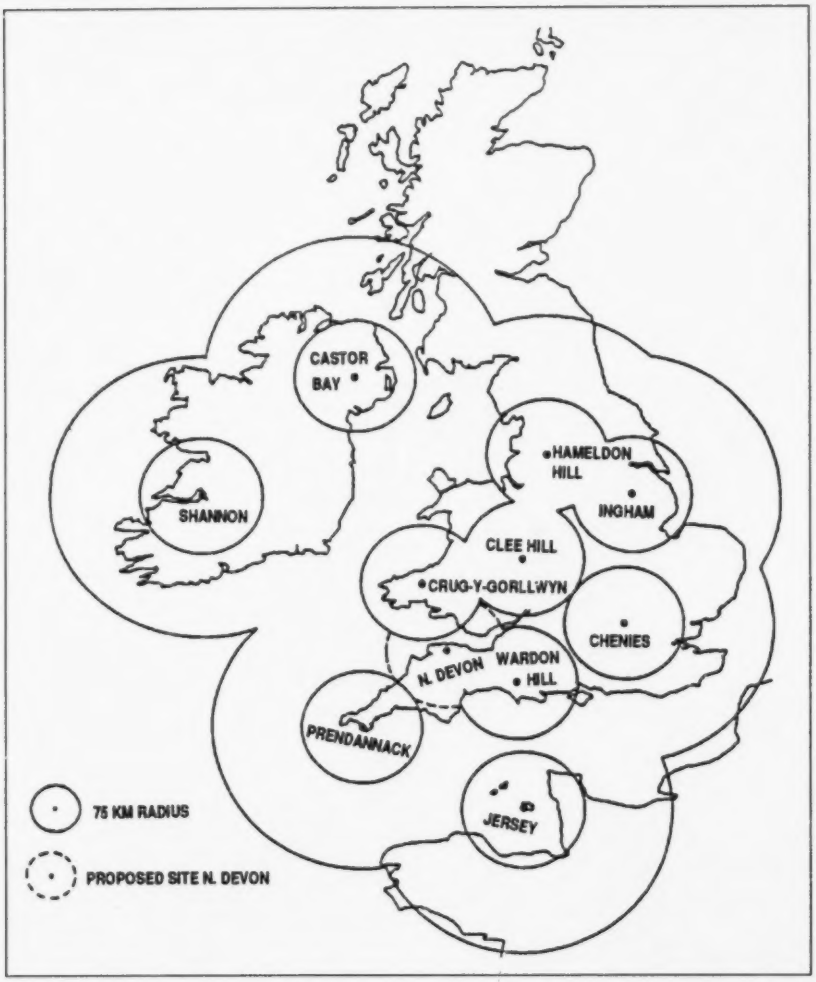


Figure 4 - Radar network covering the British Isles

of river basins. The application of hydrological forecasting systems using rainfalls derived from radars and satellite imagery is being promoted through the HWRP and in several technical co-operation projects. Another component of preparedness against floods is the mapping of flood plains to establish the risk of flooding against the range of expected flood levels. In one highly successful WMO/UNDP project in Jamaica, in addition to the scientific and technical work involved, the project team produced a regular newspaper *(Figure 5)* to improve public awareness in order to heighten appreciation of the danger of floods and to promote preparedness.

The WMO policy for the Decade is to attempt to extend these protection and preparedness systems to those parts of the globe which are currently unprotected and to upgrade those existing systems which are in need of improvement. To this end the Organization is expecting to undertake three new projects, based at the WMO Secretariat, which will contribute to achieving these goals:

- Upgrade substantially the tropical cyclone warning system for the countries of the South-West Indian Ocean;
- Undertake a comprehensive study of the risk of occurrence of natural hazards in a particular region;
- Extend the highly successful hydrology technology transfer system (HOMS) to cover the entire field of natural disasters.

By the end of the Decade WMO considers that the vulnerable nations should be in possession of the systems for forecasting and warning that they need for their protection, at least against the meteorological and hydrological hazards. Just how much protection has been achieved by 2000 AD will provide a measure of the success of IDNDR. ■

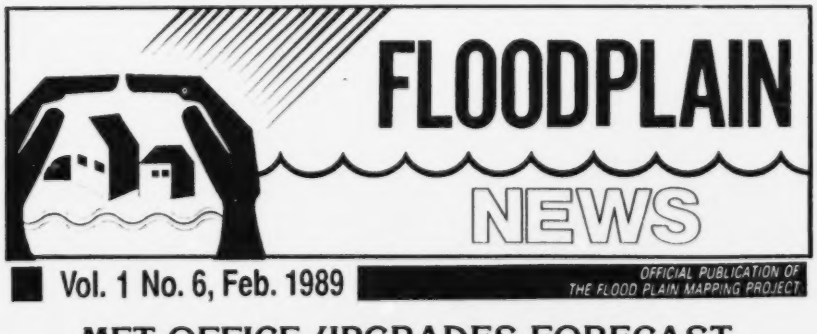

FLOODPLAIN
NEWS
Vol. 1 No. 6, Feb. 1989
OFFICIAL PUBLICATION OF THE FLOOD PLAIN MAPPING PROJECT
MET OFFICE UPGRADES FORECAST FACILITIES

Figure 5 - Flood plain News

Des chiens au secours des victimes de catastrophes

(continued from page 10)

SECTION
DES
SAMARITAINS
DE BERNEX

CONFÉRENCE PUBLIQUE :
Les chiens de catastrophe

CONFÉRENCIER : M. Gustave Marquis, conducteur de chien du groupe genevois des chiens de catastrophe, rattaché au corps suisse

Lundi 3 octobre, à 20 h. 15,
Aula de l'école de Lully

Entrée gratuite
Cordiale invitation à tous.

Paris, et l'UISC No. 7 de Brignoles, dans le Var, ont été remarquées pour la qualité de leur travail lors de récents tremblements de terre. En Italie, une école située dans les environs de Trento, la "Scuola Provinciale di Cani da Ricerca", est dirigée avec dynamisme par Enzo Vezzoli et organise, outre des sessions de formation régulières sur le plan régional et national, des séminaires et des rencontres sur le plan international.

Afin que les différentes équipes de secours présentes sur les lieux d'un sinistre soient mieux à même de faire face aux difficultés et de résoudre, dans la mesure du possible, les problèmes rencontrés, surtout lors de séismes importants comme ceux de Mexico City en 1985, de San Salvador en 1986 et d'Arménie en 1988, la coordination au niveau des opérations de secours a besoin d'être renforcée. Cela s'applique également aux équipes cynophiles dont les conducteurs, souvent de langues différentes, peuvent avoir du mal à communiquer avec ceux qui opèrent dans le même secteur ou qui s'apprêtent à prendre le relais, et qui utilisent parfois des techniques différentes. Dans cette optique, de plus en plus de séminaires et d'ateliers de formation internationaux à l'intention des K-teams sont organisés afin de comparer les diverses expériences sur le terrain et de confronter les méthodes d'instruction respectives. Le 4ème Symposium international de l'Association des Chiens de Sauvetage de la République fédérale d'Allemagne (Bundesverband für das Rettungshundewesen), spécialement destiné aux conducteurs de chiens expérimentés de plusieurs pays, se tiendra à Berlin en octobre 1991.

Selon Bill Dotson, co-responsable avec Caroline Hébard des K-teams américains, de telles rencontres s'avèrent très utiles mais ne suffisent pas. Il faudrait, dit-il, élaborer sans tarder un Code de Conduite international destiné à faciliter la collaboration entre toutes les équipes cynophiles opérant sur les lieux de catastrophes. Ce code constituerait un outil de travail qui, en identifiant les sources de difficultés et de malentendus et les risques de répéter inutilement les recherches, et en proposant des moyens d'y remédier, permettrait d'obtenir un meilleur rendement global ainsi qu'une coopération et une compréhension accrues entre toutes les équipes.

CAROLINE HEBARD
United States National/International
SAR Disaster Response Team
Trainer, Coordinator

104 Ballantine Road
Bernardsville, NJ 07924
201-766-7125

Sky Pager #1 800 759 7243
Pin #99615

Search and Rescue
CANINE SAR HOTLINE
1-800-727-2700
Funded by ALPO

For Information Only
Call 215-821-1299

Elaborer sans tarder un Code de Conduite international destiné à faciliter la collaboration entre toutes les équipes cynophiles opérant sur les lieux de catastrophe

A l'occasion d'une conférence donnée à Lully, près de Genève, en octobre 1988, Gustave Marquis, conducteur de chien du groupe genevois des chiens de catastrophe rattaché au Corps suisse, a donné un certain nombre de précisions, répondant ainsi aux questions que se pose le public en ce qui concerne ces "SUPER DOGS" :

- Les chiens sélectionnés pour ce type de dressage proviennent de diverses races mais ne sont pas obligatoirement des chiens de race.

- Leur entraînement est l'un des plus ardus qui soit.

- La sélection est très rigoureuse. En effet, même s'ils ont reçu un excellent entraînement, certains chiens ne sont pas retenus.

- Les chiens de petite taille sont utiles dans certains cas, notamment lorsqu'il s'agit de se faufiler entre des espaces étroits.

- Un deuxième chien doit confirmer une localisation faite par un premier.

- Le flair ne demeure pas intact au-delà de trois ou quatre jours.

- Les chiens aiment leur travail.

- Le succès d'un sauvetage

dépend beaucoup de l'attachement réciproque entre le chien et son maître.

❑ Les chiens ne conservent pas toujours un moral à toute épreuve (ils sont déprimés lorsqu'ils repèrent un trop grand nombre de victimes).

❑ Des périodes de repos et de jeux leur sont indispensables.

❑ Le matériel sophistiqué (acoustique, infra-rouge) ne remplace pas un chien bien dressé, mais il est complémentaire. ■

SAR DOG ALERT

. . . that others may live

Jim O'Brien
Leader
Interim SAR Dog Management Team

a newsletter for the SAR Dog community
Vol. 8 No 4 March 1990
Judy Graham, Editor

Principales associations et unités cynophiles disposant de K-teams

Autriche : Katastrophen-SuchHundetruppe, Steinach-am Brenner.
Canada : Canadian Search and Rescue Dogs (CANSARD), Scoudouc, New Brunswick.
Etats-Unis d'Amérique : U.S./SAR Disaster Response Team, Bernardsville, New Jersey. Plus environ 88 groupes SAR ("search and rescue") bénévoles, dont les coordonnées sont fournies dans le Répertoire annuel **National Search and Rescue Dog Directory,** National Association for Search and Rescue (NASAR), Fairfax, Virginia.
France : Association nationale des équipes cynophiles de recherche et de sauvetage (ANECRS), Sous-Préfecture de Briançon : Unités d'instruction et d'intervention de la sécurité civile (UISC), et notamment l'UISC No. 1 à Nogent-le-Rotrou et l'UISC No. 7 à Brignoles.
Islande : Icelandic Dog Rescue Team/Scout Rescue Team, through the Association of Icelandic Rescue Teams (LHS), Reykjavik.
Italie : Unità Cinofile Italiane da Soccorso (UCIS), Milano.
Mexique : Escuadra de Perros de Catástrofe, México.
Norvège : Foreningen Norske Lavinehunder (FNL), Oslo.
Nouvelle Zélande : New Zealand Alpine Search Dogs, Wanaka.
République fédérale d'Allemagne : Bundesverband für das Rettung shundewesen e.V. (BRH), Mutterstadt.
Royaume-Uni : Search and Rescue Dog Association (SARDA), Keswick, Cumbria.
Suède : Räddningsverket, Karlstad.
Suisse : Société suisse pour chiens de catastrophe (SSCC) Cavergno, composante de la Chaîne suisse de sauvetage (Rettungskette Schweiz).

* *** *

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Editor Judy Graham
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■ Search Dog, *par Angela Locke.* Souvenir Press, 1987. En anglais.

■ Wettlauf mit dem tod, *par Herbert Schuhmacher.* Müller Rüschlikon, 1988. En allemand.

■ Kheops, *par Georges Fleury,* Grasset, 1989. En français.

Pour une information plus complète et spécialisée sur le sujet, une Bibliographie est disponible sur demande à l'UNDRO.

Cet article a été rédigé par la resposable de la banque de données de l'UNDRO.

Impact of the Greenhouse Effect on Bangladesh

by Dr. M.A.H. Pramanik & Dr. Anwar Ali

The impact of greenhouse gases on the world environment has become of great concern to mankind. This paper is an attempt to review what is currently known about the greenhouse effect and to illustrate its probable consequences with particular reference to the coastal region of Bangladesh which is most vulnerable to the sea level rise phenomenom.

For hundreds and thousands of years, earth's climate has undergone numerous changes, but the possible climatic changes due to the concentration of greenhouse gases in the atmosphere, with a predicted rise of 1.5° to 4°C. in the earth's temperature by the middle of next century, are now a cause of alarm. This is expected to affect our whole environment - either directly or indirectly - through changes in precipitation patterns, oceanic and atmospheric circulation, monsoon variability and strength, cyclone frequency and intensity, tides and storms surges, with probable repercussions on forest coverage, soil condition, agricultural practices and output and food production. Immediate action is required to reduce the release of greenhouse gases before our planet suffers serious social and economic consequences. Simultaneously, there should also be a monitoring mechanism of the impact of these gases on earth's environment.

The energy of the sun comes to earth in the form of electromagnetic radiation. If solar radiation were a one-way traffic, life on earth would not be possible. But, earth also radiates heat energy. This outgoing radiation is partially trapped by certain gases which are present in minor proportion in the atmosphere. The most abundant of these greenhouse gases (about 50%) is carbon dioxide (CO^2), accompanied by smaller amounts of methane, nitrous oxide, and chlorofluorocarbons (CFCs). These lead to a warming of the earth and its atmosphere.

In a greenhouse, the glass panels allow the solar radiation to enter in but prevent the emitted radiations from going out, thereby raising the temperature inside. Without the natural greenhouse gases, our planet would be covered with ice and would be lifeless. That is why the earth has been compared with a greenhouse, and the greenhouse gases with the glass panels. These gases in the atmosphere are necessary for life to exist on earth, but in excess they become dangerous. Already, the atmospheric concentration of CO^2 and other greenhouse gases has exceeded the normal concentration required to keep the earth at a balanced temperature in relation to the incoming solar radiation.

With the beginning of the Industrial Revolution in the early 19th Century, CO^2 concentration started growing. Its annual growth rate in the atmosphere is of about 0.5 percent and comes from two primary sources: burning of fossil fuel and widespread deforestation. At present, 80% of annual CO^2 emissions come from fossil fucl like gas and oil[1]. The widespread cutting of trees has decreased their capacity to soak up the excess of CO^2 and when they are burnt or left to rot, they instead release CO^2.

Unlike other greenhouse gases, CFCs (chlorinated fluorocarbons) do not occur naturally in the atmosphere; they are man-made. They are used as solvents, spray can propellants, refrigerator fluids, foam packaging, etc... There are three main reasons why CFCs greatly contribute to the greenhouse effect:

Storm surge heights are directly related to cyclone intensity. Bangladesh cyclone, May 1985.

- Each CFC molecule is 10,000 to 20,000 times as efficient at trapping heat as a CO^2 molecule.

- CFCs are inert gases which do not combine easily with other substances and are therefore mostly long lived.

- In addition to adding to the greenhouse effect, CFCs also destroy ozone in the stratosphere.

As already pointed out, the first impact of increased greenhouse gases will be a rise in the earth's temperature which will have a series of secondary but important consequences. While we can only speculate on some of these, speculations are sometimes worth making because they can lead to taking some precautionary measures; and prevention is better than cure.

One of the direct and major consequences of rise in temperature due to greenhouse effect is the rise in sea level through the thermal expansion of near surface ocean water and the melting of existing snow fields, ice sheets and glaciers. By the end of the last glacial epoch, about 15,000 years ago, the sea level rose by about 100 m through glacial melting. The present sea level was reached about 5,000 years ago and, since then, it has risen only by a fraction of a millimeter per year[2]. During the past century, sea level has probably risen by 10-15 cm[3]. However, it is not possible to ascribe the past sea level rise to the greenhouse effect, even if such a conclusion would not be inconsistent with what can be expected from global warming. Various scenarios predict total rises in the range of 25 cm to more than 2m by the end of the next century[4].

The sea level rise will lead to coastal inundation throughout the world, particularly along the coastal areas of Bangladesh, the Maldives, Indonesia. The Delft Hydraulic Laboratory[5] has identified potential coastal areas around the globe that are likely to be inundated by the sea level rise. This rise will have far reaching consequences: inundation of wetlands and lowlands, acceleration of coastal erosion, higher risks of flood disasters, drainage and irrigation problems, increase of salt water intrusion into rivers, agricultural and forest land in coastal regions, and ground water, and damage to port facilities, among others.

Studies by a number of authors indicate that the greenhouse effect will almost certainly bring changes in cyclonic activity. One of the disastrous consequences of cyclones is the generation of storm surges which lead to coastal flooding and cause great loss of life and property. Storm surge heights are directly related to cyclone intensity, and astronomical tides in combination with storm surges increase sea level and hence lead to severe coastal flooding. Sea level rise is likely to complicate the situation still further. All these factors, however, need further investigation.

Global warming may change the precipitation pattern, but present studies - mainly because of the lack of adequate and reliable data over the past decade - are not conclusive. Substantial changes have been noticed in certain places, such as persistent drought in sub-Saharan West Africa and recent floods in South Asia. However, their relationship with global climatic changes has still to be established.

The rise in temperature may cause more evaporation, which will then increase both humidity and cloud cover. It has been shown[6] that a six percent increase of cirrus cloud cover can produce a surface warming equivalent to a doubling of atmospheric carbon dioxide. On the other hand, if middle and low level clouds were to increase at the same time by three percent, the surface temperature effect would be cancelled. It is still uncertain how

large scale changes in the climate affect cloud cover and vice versa.

Impact on the Himalayan Region

Just as air is free to move from one place to another without any hindrance, ocean waters also travel from one area to the other. This makes the greenhouse effect a global phenomenon rather than a local one, although some regions are likely to be more affected than others. This will probably be the case for the Himalayas.

The possible melting of snow and the retreat of glaciers due to the greenhouse effect in the Himalayas are likely to further increase the land-ocean temperature gradient in summer, (because more land will be exposed to heating), and hence increase the intensity of the south west monsoon. This may cause more precipitation and river run off, as well as increase flood frequency and damage. Large scale deforestation in the Himalayan region is also likely to cause climatic changes and bring about erosions, landslides and floods.

Impact on Bangladesh

The Himalayas, which lie to the North of Bangladesh, partly contribute to its climate, but most of the disastrous weather-related effects over the country are likely to originate in the South, i.e. the Bay of Bengal, the principal cause being the sea level rise. However, it is not clear what climatic impact the greenhouse effect will have on Bangladesh as a whole there has been no systematic study on climate variations in this region.

Bangladesh would be one of the most vulnerable countries to sea level rise. Under the present estimates of a 20 cm rise in sea level by the year 2025*, a substantial area of the country is likely to go under water.

For longer time scales, studies have been made to delineate the areas of Bangladesh likely to be inundated by sea level rise[7/8]. A 1.5 m rise in sea level, for instance, would inundate about one sixth of the country, while a three to four meter rise would flood almost one third. Such figures are obviously alarming for a country like Bangladesh which has only about 144,000 km^2 of land to feed millions (approximately 109 in 1988) and has an estimated population growth rate of about 2.73 percent per year. In Pakistan and in India, the rates are reported to be of one milimeter per year[9] which, if the same for Bangladesh, would not be too alarming.

Sea level rise can be monitored both by conventional and satellite techniques. The conventional methods consist mainly of tide gauges and submerged pressure gauges. A global Permanent Service of Mean Sea Level has been established with a view mainly to collect, analyze and interpret monthly and annually mean sea levels from gauges world-wide, in accordance with the requirements of the Federation of Astronomical and Geophysical Services. In Bangladesh, networks of tide gauges along the coastal area are maintained and operated by the Bangladesh Water Development Board and the Bangladesh Inland Water Transport Authority. However, there does not seem to be any on-going study in Bangladesh on the current rate of increase of sea level.

The Bay of Bengal is one of the areas most favourable for cyclogenesis, accounting for 10% of all tropical cyclones in the world; but disasterwise, this area ranks first in the world. About 40% of cyclonic casualties in the world occur in Bangladesh and about 65% in Bangladesh and India combined[10]. As already indicated, the greenhouse effect may worsen the situation. A preliminary study of cyclone frequency over the past 200 years show that the maximum number of cyclones occurred during the 1960s, culminating with the November 1970 cyclone. The last major cyclone disaster in Bangladesh was in May 1985.

Most of the cyclonic casualties in Bangladesh, as in other parts of the world, are caused by storm surges. Generated by cyclones, storm surges are modified by several factors, most of which are likely to undergo changes due to the greenhouse effect. One of the consequences of a sea level rise is coastal erosion. There are four dynamic reasons for coastal erosion in Bangladesh: tides, storm surges, windwaves and strong river discharge current[11]. The effect of sea level rise on coastal erosion is not yet known, but constant monitoring of the accretion-erosion process through remote sensing could provide useful information. Some studies have already been made in Bangladesh, by comparing satellite imagery of different years and preparing change detection maps[12/13]. These studies show where erosion and accretion are most dominant.

All in all, the greenhouse effect may bring about serious changes in socio-economic aspects of life along the coast of Bangladesh[14]. Various sectors such as agriculture, fisheries, forestry and industry, will be jeopardized; infrastructure will be dislocated and human resources affected. Agriculture is likely to

*Villach Conference, 1985.

suffer most badly through loss of land to sea and intrusion of saline water, and there will be problems of drainage and irrigation systems. Mass exodus of people from coastal areas may also occur, thus increasing pressure on already over-populated areas.

In the light of the above, Bangladesh could take a number of steps to monitor the situation, such as:

- All the available meteorological, hydrological and oceanographic data in the country should be analyzed to study trends in temperature, precipitation, water level, humidity, cyclone frequency, cyclone intensity, sea surface temperature and salinity.

- Regular monitoring and recording of the above should be made.

- A few tide gauge stations along the coastal area of Bangladesh should be identified to follow the international standards and should be included in the Permanent Services of Mean Sea Level network.

- Increasing emphasis should be given to the use of remote sensing techniques to study the effects of environmental changes (including the greenhouse effect) in different fields such as coastal erosion/accretion, deforestation and snow melting, and to map surface temperature, monitor soil moisture and record river course changes.

- A National Task Force/Team could be set up for in depth study and monitoring of the Greenhouse Effects/Environmental Degradation and for suggesting appropriate measures to deal with these problems.

Abridged version of a technical paper submitted by Dr. M.A.H. Pramanik, Director, and Dr. Anwar Ali, of the Bangladesh Space Research and Remote Sensing Organization (SPARRSO). This paper was originally presented at the Seminar on "State Environment in the Himalayan Region", Dhaka, Bangladesh, 18 June 1989. ■

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Seminars & Conferences

International Conference "EMERGENCY '90" Disaster Management Present and Future Cairo, Egypt - 24 - 27 September 1990

Organized by the Academy of Scientific Research and Technology of the Arab Republic of Egypt, under the joint patronage of the United Nations Disaster Relief Co-ordinator, the International Civil Defence Organization, and the League of the Red Cross and Red Crescent Soceities.

Emergency '90 is intended to promote the transfer of technology and to strengthen disaster prevention and preparedness in developing countries, within the framework of the International Decade for Natural Disaster Reduction. It follows upon four international conferences held at two-year intervals over the past eight years - Emergency '82 and '84 in Geneva, Emergency '86 in Barcelona and Emergency '88 in London. The first such congress dealt with general aspects of preparedness and relief at the national and international levels. In 1984, the principal theme for the conference was preparedness in case of fire rescue and evacuation, disaster medicine, and housing/shelter needs. Emergency '86 examined the subject of "water - hazards and resources", with special emphasis on prevention, health hazards and emergency relief. The 1988 conference focussed on "education, training and public information" in disaster management, and was attended by over 200 delegates from 41 countries.

The Cairo conference will examine, among other topics, risk analysis in disaster-prone areas, trends in international and regional co-operation, and the plight of children in natural disaster situations. Officials in charge of disaster management at the national and international levels, non-governmental organizations, scientists and researchers from various parts of the world are invited to participate. An exhibition of specialized equipment will be held in conjunction with Emergency '90.

The official languages of "Emergency '90" will be Arabic, English and French. *Further information can be obtained from the Conference Secretariat (Cable: ACASCIT, Telex: 93069 ASRT UN, Fax.: (202) 3562820, Tel.: (202) 3546532).*

National Convention on "Role of Voluntary Agencies in Natural Disaster Reduction" Bhopal, India - 24 - 28 September, 1990

A three-day national convention will be held in Bhopal, to discuss issues related to disaster preparedness and management in India, in the context of the IDNDR.

Topics will include: Resources in the field of training and education for Disaster Management; Shelter and housing in disaster-prone belts; Watershed management for flood and drought control; Environmental hazards and role of voluntary agencies for disaster reduction; Problems of coastal areas with special references to soil erosion and sea level rise and other disasters; Identification of areas for joint action during the International Decade on Voluntary Agency level.

The convention has been jointly organized by the Disaster Management Institute of Bhopal, and the Joint Assistance Centre, New Delhi. Several prominent experts from India and representatives of UN bodies like the IDNDR Secretariat in Geneva and the United Nations Institute for Training and Research are expected to present theme papers at the Bhopal convention.

For further information:
Dr. Kamal Kumar [Training], Disaster Management Institute, Paryavaran Parisar, E-5, Arera Colony, Bhopal-462016 India. Tel.: 68653, 68715, Telex: 0705-354 AFOS IN.

An International Conference in support of the International Decade for Natural Disaster Reduction is scheduled to take place in Yokohama and Kagoshima, Japan, from 27 September to 3 October 1990

The Conference is organized by the Japanese Government, the City of Yokohama, the Kagoshima Prefecture and the United Nations Centre for Regional Development, with the co-operation of the Japan International Cooperation Agency and the Kanagawa Prefecture.

Topics will include international cooperation for natural disaster reduction, changes in urban structures of modern cities, regional development and disaster reduction and citizens' participation in disaster reduction.

Participants: ■Seniors level policy planners, administrators and researchers from the developed and developing countries who are engaged in disaster prevention & management and regional development planning; ■Representatives of UN agencies and other international organizations who are engaged in disaster prevention & management are expected to participate in this conference.

For further information, please contact: The Director, IDNDR Promotion Office, Disaster Prevention Bureau, National Land Agency, 1-2-2-, Kasumigaseki, Chiyoda-ku, Tokyo, 100 Japan. Tel.: 03 - 501 - 6996, Fax.: 03 - 503 - 5690 Japan.

CALENDAR OF IDNDR-RELATED EVENTS 1990*
(as at 15 May 1990)

Date/Place	*Meeting/Subject*	*Organisers*
06 June - Geneva	Sixth meeting of the UN Steering Committe for the IDNDR	IDNDR
13-14 June-Montreal, Canada	Consultative Meeting on Humanitarian Assistance in Latin America	Pan American Health Organization
15-17 Jun -York, U.K.	Annual National Civil Protection Study	Institute of Civil Defence, London
27-28 June-Washington, USA	Colloquium on Environmental Management and Natural Disaster Reduction	World Bank
July - Madrid, Spain	World Congress of Sociology	International Sociological Association (ISA)
24-27 July-Bogota, Colombia	Seismic disasters in large cities	National Office for Prevention and Reduction of Disasters
22-29 August-Nairobi, Kenya	Regional seismological assembly in Africa	IASPEI/UNESCO/ICL
28-30 August-Bhopal, India	National Convention on Role of Voluntary Agencies in Natural Disaster Reduction vis-à-vis IDNDR	Disaster Management Institute, Bhopal, and Joint Assistance Centre, New Delhi
28-31 August-Vienna, Austria	Workshop on Intense Atmospheric Vortices and Storm Surge Prediction	IUTAM/IUGG
02-06 Sept.-Oxford Polytechnic	International Workshop: Disasters and the small dwellings	Disaster Management Centre, Oxford
03-14 Sept.-La Colombella (PG) Italy	Summer School on Stability of River and Coastal Forms	CNR-GNDCI and IAHR; Istituto di Idraulica, University of Genoa
24-26 Sept.-Cologne, FRG	First World Congress on Safety Science (in the industrial society)	TUV Rheinland
24-27 Sept.-Cairo, Egypt	'Emergency 90' International Conference for Disaster Management (Present and Future)	Academy of Scientific Research and Technology (ASRT): co-sponsors UNDRO, ICDO, LORCS
27 Sept.-03 Oct.-Yokohama and Kagoshima, Japan	IDNDR International Conference	The Japanese Government, City of Yokohama, Kagoshima Prefecture and UNCRD
08-10 October- Tunis, Tunisia	Joint Seminar on disaster preparedness and prevention in Arab Countries	AIMC and UNDRO
08-12 October-various, USA	IDNDR meetings across the United States	US National Committee for IDNDR
08-17 October, Geneva	Meeting of Experts on the Prevention of Major Hazards	ILO
09-19 October-Moscow, Alma-Ata, Frunze (USSR)	Training Seminar on Geological and Seismic Hazards	UNDRO/UNDP and USSR
10 October-worldwide	IDNDR International Day	United Nations
10-11 October-Bangkok, Thailand	Workshop on technical assistance for IDNDR in Asia	Asian Development Bank; Asian Disaster Prevention Centre/Asian Institute of Technology
15-17 October-Paris, France	Workshop on Contribution of Engineering and Technology to IDNDR	Joint Executive Committee of the UITA and WFEO
22-26 October - Perugia, Italy	Seminar on Prediction and Perception of Natural Hazards	Consiglio nazionale delle Ricerche, US National Science Foundation, IDNDR
November-Bangkok, Thailand	Regional Workshop for Asia and the Pacific	ESCAP/IDNDR
10-12 November-Baghdad, Iraq	Tenth World Civil Defense Conference	ICDO on occasion of Tenth General Assembly within IDNDR
27 Nov.-01 December-Tianjin, China	International Emergency Expo'90 International Exposition for Emergency and Rescuing Equipment	China Association for Disaster Prevention, International Exchange and Co-operation Committee; China Chamber of International Committee; Tianjin Chamber of Commerce; Tianjin International Exhibition Corporation
DATES TO BE DETERMINED	IDNDR Scientific and Technical Committee (STC)	IDNDR
	SEISMED (Mediterranean Seismic Risk Project): Second Workshop on Vulnerability	IDNDR/UNDRO

*For additions and/or changes to calendar please contact IDNDR Secretariat, UNDRO, Palais des Nations, CH-1211 Geneva 10, Switzerland

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